THE AVIFAUNA OF TOKER POINT, TUKTOYAKTUK PENINSULA, NORTHWEST TERRITORIES, 1985-1987

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Jacques Sirois
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ABSTRACT

A study of the impact of oil development on birds in the Beaufort Sea region was initiated in 1985. Although the study focused on Red-throated Loons, data on all bird species were collected. This report summarizes over 120,000 sightings of birds of 74 bird species recorded daily at Toker Point, NWT, from June to September 1985, 1986 and 1987. Twelve additional species were also recorded within 100 km of the study area.

The most common sightings were of Anseriformes (66%), followed by Charadriiformes (17%) and Passeriformes (14%). Thirty bird species were confirmed to breed and 12 were suspected breeders. The most common breeders were the Red-throated Loon, Pacific Loon, Glaucous Gull, Lapland Longspur and Oldsquaw. In July and August, hundreds of waterfowl moulted in the area. The most common moulters were the Oldsquaw, Common Merganser, Red-breasted Merganser and Scaup sp. Numbers of migrating waterfowl, waders and passerines peaked in the last days of August. The Lesser Snow Goose, Lapland Longspur, Savannah Sparrow, Greater White-fronted Goose, and Red-necked Phalarope were the most common migrants. The numbers of most species and their relative abundance fluctuated widely from year to year. Few unusual sightings were reported.

RÉSUMÉ

Une étude de l'impact des activités pétrolières sur les oiseaux migrateurs de la Mer de Beaufort a été amorcée en 1985. Bien que le Huart à gorge rousse ait été sélectionné comme "espèce baromètre", les observations de 74 espèces d'oiseaux, soit plus de 120 000 données, furent compilées quotidiennement à Toker Point, dans les Territoires du Nord-Ouest. Douze autres espèces ont été également observées dans un rayon de 100 km. Cette étude s'est déroulée entre juin et septembre 1985, 1986 et 1987.

Plus de la moitié des oiseaux observés furent des Ansériformes (66%), suivis par les Charadriiformes (17%) et les Passériformes (14%). Trente espèces d'oiseaux ont niché à Toker Point et 12 autres y ont probablement niché. Le Huart à gorge rousse, le Huart du Pacifique, le Goéland bourgmestre, le Bruant lapon et le Canard kakawi furent les nicheurs les plus communs. En juillet et en août, le Canard kakawi, le Grand Bec-scie, le Bec-scie à poitrine rousse et les morillons sont venus muer par centaines. Pendant la migration d'automne, la population locale de sauvagine, d'échassiers et de passereaux a culminé vers la fin d'août. La Petite Oie des neiges, le Bruant lapon, le Bruant des prés, l'Oie rieuse et le Phalarope hyperboréen furent les espèces migratrices les plus communes.

Le nombre d'individus et l'abondance relative de chaque espèce a varié considérablement d'année en année. Relativement peu d'observations inhabituelles ont été compilées.

QULIAGAQ

1985-mi, uqsiqiyit paqinniaqtillugit uqsuqyuamik Beaufort Seami tingmiluit nautchiukigait (launched). Tingmiluaqat taapkuat Qaqsaut nagatchiutigiyait nautchiuramitkit tingmiluit uqsiqiyit maanitillugit, maqpiraanuklugittauq katitchiplutik tamatkiqlugit tingmiluit, tingmiluaqat, tingmiaqyuitlu. Uuma maqpiraam quliammariksimagait takumayatik tikitqayauqlugu 120,000 tingmiluit 74 avugiit kisinnigait Nunasuami (Toker Point), NWT, June-minanniin September-munaglaan, 1985-1987-lu auyanganni. Qulit-malruktauq (12 additional) tingmiluit avugiit takumayavut maqpiraanugait 100 km. Nunasuam qaninganrani uvaguttauq maqpiraanunmiyavut.

Tingmiluit avugiit takumayatik avvait sippilaklugit pingasukipiaq-arviniliktun (66%) tingmiluarauniqtuat, tingmiluviit, qukyuitlu (Anseriformes), inukitqigaitauq sinaanitchuyualuit tingmiluaqat, nauyatlu (17%) suliptauq Tingmiaqyuit, Tulukkaaluitlu (14%). Kisitchimmariksigamik qulitpinasut (30) avugiit tingmiluit irniyaqtuqpaanniqtuat qulit-malruktauq irniyaqtuqpaguknaqtuat. Qaqsauq, Qaqsauqpialuk, Nauyaq, Nasauligaaluk, Ahaanliglu irniyaqturuuvanniqtuat. July August-milu ingiaktukaluit tingmiluit avugiit isayaqtuqpaktuat tamaani. Ahaanliq, Pairaaluk, Aukpaligaaluk, Qaqlutuuk isayaqtuqpaniqtuat tamaani. Qaisuuyuat maunga tingmiluit, tingmiluaqat tingmiaqyuarraaluitlu utiavaktuat ukiivinminnun August nungunialiraangan, aglaan August qitiqquraangan tingmiluit avugiit tingmilaqivaktuat niriniaqlutik sumunliqaa utiqsaraangamik. Kanguq, nasauligaaluk, Saksagialuk, Tingmiaq, Gaivallaguyualuk tamatkuat utiruuyut maunga ukiivinminnin. Upinraksatuaraangan qaiyaraangamik tingmiluit avugiit ilaanni auyatqiani inugiatqiuvaktuat atunimuuyuittut. Qainraqtuat maqpiraanukkavuttauq.

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We thank the staff of CSS J.P. Tully, and particularly Mark Yunker of the Department of Fisheries and Oceans (DFO), for providing diverse information on sightings recorded at Tuktoyaktuk and offshore Toker Point, in the Beaufort Sea.

We are grateful to Stuart Alexander, Tom Barry, Jim Hines and Kevin McCormick for reviewing the manuscript. Charles Gruben translated the abstract and the bird list in Inuvialuktun. Susan Popowich drafted the figures and arranged for printing.

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1.0 INTRODUCTION

Oil production in the Beaufort Sea could have major negative impacts on wildlife in general, and migratory birds in particular. Recently, the North American media have given much attention to an unreleased report of the US Fish and Wildlife Service which states that unexpected harm had been done to wildlife and its habitats around Prudhoe Bay, Alaska. Development activities have supposedly destroyed the habitat of more than 20,000 birds and the populations of most bird species have declined (Shabecoff 1988, Associated Press 1988a, Reuter 1988).

Oil prices are currently low (end of 1988), after having plummeted in 1986. However, drilling in the Beaufort Sea and the development of the Amauligak oil field, could lead to a yearly production of 2.5 million barrels of oil. The first tanker shipment of Beaufort oil occurred in 1987 and further development will likely take place in the future (Cox 1987, Fisher 1988, Associated Press 1988b).

In 1985, the Canadian Wildlife Service initiated a study to monitor the effects of oil and gas production on migratory birds in the Beaufort Sea region. Although the study focused on the Red-throated Loon, which has been selected as the indicator species, data on all bird species were collected. This report summarizes the daily observations on all species of birds recorded at Toker Point, NWT, from June to September 1985, 1986, and 1987. Species composition, breeding status, relative abundance, and temporal and spatial distribution are discussed.

In this report, the term "Delta Region" refers to the area encompassing the inner and outer Mackenzie Delta-estuary, the Yukon North Slope, Tuktoyaktuk Peninsula, and adjacent marine waters of the Beaufort Sea.

Numerous surveys and studies have documented the avifauna of the Canadian Beaufort Sea region. In most instances, waterfowl was the main focus of these studies. Most notable are two programmes that were conducted in the 1970s: the Canadian Arctic Gas Study and the Beaufort Sea Project. Up to 122 bird species, including at least 46 breeders, have been reported on the Yukon North Slope (Salter 1980). Two recent literature reviews have revealed the presence of 85 species along the Beaufort Sea coastline (Johnson et al. 1975) and 137 species in the Mackenzie Delta, north and south of the treeline (Martell et al. 1984). Closer to Toker Point, 68 species, including 25 breeders, were reported at Atkinson Point on the Tuktoyaktuk Peninsula (Kevan 1970, Arner et al. 1985). To date, no intensive investigation of the avifauna of Toker Point has been undertaken.

2.0 STUDY AREA

2.1 Status of The Land and Human Activities

Toker Point (69° 39'N, 132° 50'W; Fig. 1) and its environs are included in the Western Arctic Land Claim, as recognized in the Inuvialuit Final Agreement (INAC 1984). The area is also part of the Reindeer Grazing Reserve established by the federal government in 1937. In 1975, Toker Point was recognized as an International Biological Programme Site (IBP) for its outstanding

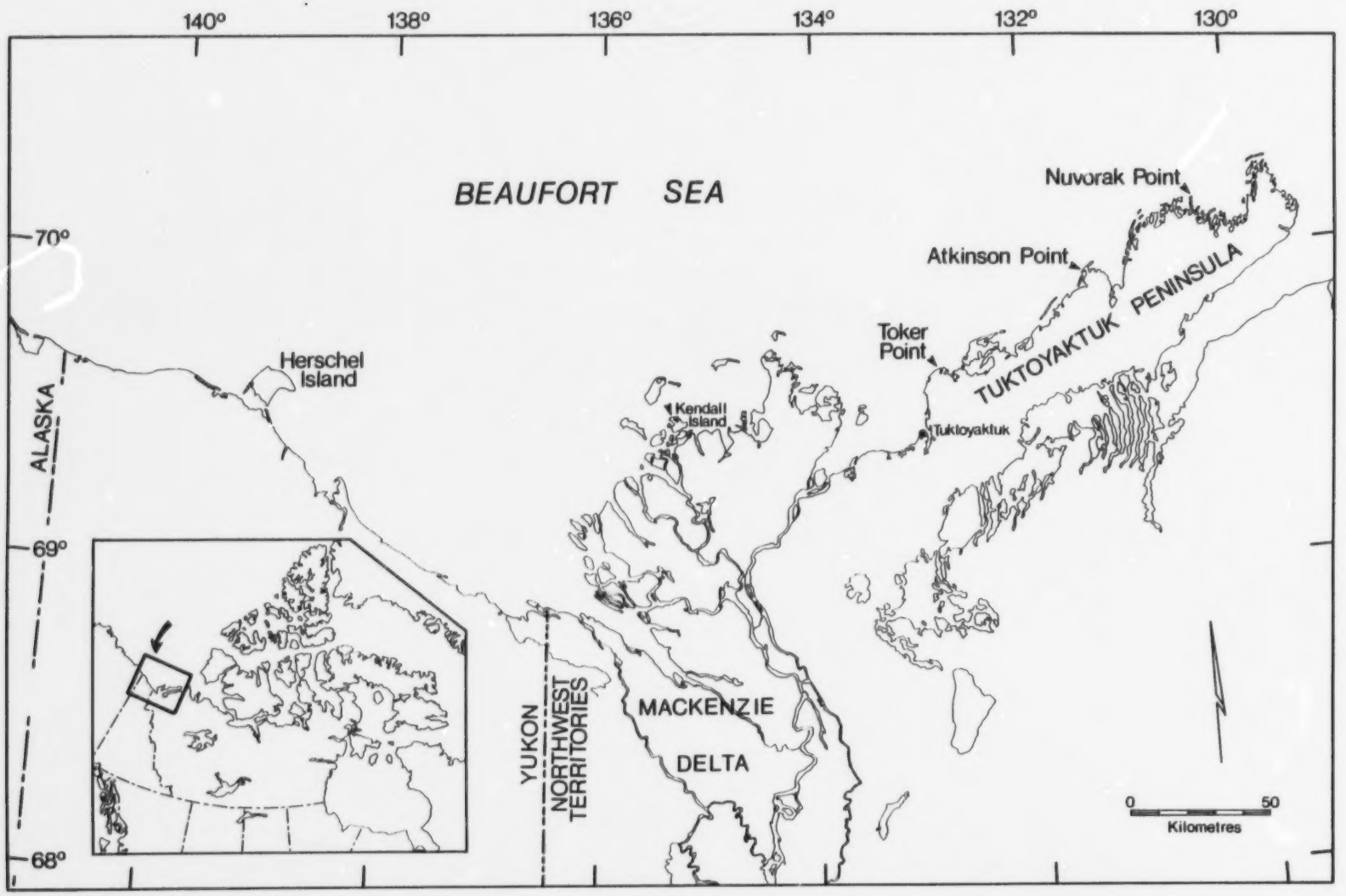

Figure 1. Location of Toker Point, Tuktoyaktuk Peninsula, NWT.

density of pingos and its typical low-arctic coastal environment. However, this designation does not afford any statutory protection.

Tuktoyaktuk residents fish and hunt at Toker Point. Hunting is intense in May and late August when the goose spring and fall migrations peak. Air traffic is substantial and regular in the area; aircraft servicing offshore oil and gas activities account for much of the traffic. Toker Point also bears the marks of the oil exploration of the 1960s. Man's close proximity is best appreciated on the coastline where debris and refuse sometimes litter the beaches. Nevertheless, Toker Point is a wilderness area where relatively undisturbed environmental conditions prevail.

2.2 Geomorphological Features

The area lies within the Mackenzie District of the Arctic Coastal Plain Province (Bostock 1970). It is characterized by low, gently rolling topography underlain by Pleistocene deltaic and unconsolidated sediments. Scores of ponds, lakes and pingos (up to 30 m high) are found in the area. Coastal landforms are diverse and very dynamic. They include embayments of various sizes, barrier beaches and sand bars, projecting and recurved spits, lagoons, tidal mud-flats and marshes, sand islands, dunes, sand and gravel beaches, 50-m bluffs, and slumps. Permafrost is exposed in many locations along the coast where erosion is substantial. Storm beaches, regularly flooded in summer and scoured by ice in winter, occur in several locales. Driftwood is

abundant and can be transported by high waters as far as 1.5 km inland (Burns 1974).

The combination of vast amounts of freshwater, permafrost, and arctic climate contributes to create a very dynamic periglacial environment in the Mackenzie Delta region (French 1976 and pers. comm.). Continuous permafrost underlies the entire region and may be 300 to 600 m deep (Hunter et al. 1976). Pingos dominate the landscape. Other common periglacial landforms include low and high-centred polygons, thermokarst basins, earth hummocks, frost-boils and mud circles, ground-ice slumps, and various other features resulting from solifluction. Most lowlands appear to be drained lake beds where intricate networks of smaller lakes, ponds and sedge wetlands have evolved through freeze and thaw cycles. Small streams, sometimes tidal, connect several of the inland freshwater lakes and wetlands to the sea.

2.3 Climate, Ice Conditions and Tides

The area experiences a marine tundra climate (Burns 1974). The climate is typically arctic with long, cold winters and short, cool summers enhanced by 24 hours of daylight. The mean daily temperature is 10 ^{o}C in July and -28 ^{o}C in January. The mean annual precipitation recorded at Tuktoyaktuk is 138 mm (Atm. Env. Serv. 1982b). Drizzle and fog occur regularly in the summer. The average annual number of frost-free days oscillates between 40 and 80 (Burns 1974).

Tundra ponds are usually ice free in early June, but ice remains in the center of larger freshwater bodies until early

July. Small ponds may freeze as early as mid-September, but larger lakes freeze in late September or October. On the coast, at the mouth of the Mackenzie River, the relatively warm river water hastens break-up. Open water appears in early June and progresses along the coast on either side of the delta. The landfast ice recedes towards the end of June and is usually gone from nearshore by mid-July. Freeze-up occurs as early as mid-October (Burns 1974).

The tidal range in the Beaufort Sea is small; at Tuktoyaktuk, the mean range is usually less than 50 cm (Fisheries and Oceans Canada 1985). Storm surges occur in late summer and fall, when the fetch is greatest and high winds most frequent. Storm surges can exceed two metres in some embayments, as indicated by beached driftwood, and can cause extensive flooding due to the flatness of the coast (Henry 1975).

2.4 Vegetation

Moisture levels, the amount of protection from the wind, and the exposure to salt or freshwater are the main factors influencing the configuration of Toker Point's plant communities. Nearly all the land surface is covered by vegetation. Cryosolic soils, which are usually wet throughout the summer, predominate (Wiken 1986). The wet lowland tundra is interspersed by dry ridges and uplands. The northern limit of trees lies approximately 80 km to the south.

Toker Point features components of two biogeographical provinces: sedge-grass tundra of the Alaskan Tundra Province, and

shrubby tundra of the low-arctic Canadian Tundra Province (Udvardy 1975). In the lowlands, the most common plant communities are the sedge marsh, sedge meadow, and low shrub tundra. The sedge marshes are the wettest areas and are dominated by Carex aquatilis with lesser amounts of Carex chordorrhiza and Carex rariflora. The drier sedge meadows display a mixture of sedges, grasses and cottongrasses (Eriophorum sp.). Low shrub tundra occurs in better drained sites, and is dominated by dwarf shrubs less than a half-meter high (Salix sp., Betula sp.), sedges and grasses. Tall shrub tundra features willows and birches often reaching a height of two metres, and occurs sporadically along stream channels and sheltered slopes.

Most tundra lakes have an abrupt shoreline and are poorly vegetated. Tundra ponds, which are usually less than one metre deep, are often surrounded by a wide ring of emergent Carex aquatilis and contain stands of Arctophila fulva. Also associated with tundra ponds are several vascular plants: Hippuris tetraphylla, Eriophorum scheuchzeri, Menyanthes trifoliata, Potentilla palustris, Caltha palustris, and sometimes Lemna trisulca. Sphagnum mosses may be abundant in wet terrain.

Dry uplands, whether ridges, high-centred polygons, pingos, or well-drained slopes, feature species such as Betula glandulosa, Salix arctica, Ledum decumbens, Cassiope tetragona, Pyrola grandiflora, Arctostaphylos rubra, Vaccinium vitis-idea, Lupinus arcticus, Empetrum nigrum, and Rubus chamaemorus. Vast areas of cottongrass (Eriophorum vaginatum) tussock tundra cover gentle slopes.

The intertidal zone is subject to severe ice-scouring and it therefore supports few benthic marine plants (Martell et al. 1984). Estuarine, brackish tidal marshes occur in sheltered locales and can be extensive. Puccinella phryganodes and Carex subspathacea dominante the lower reaches of the marsh, where Potentilla egedii also grows. Dupontia fisheri and Carex glareosa grow higher on the marsh platform where flooding occurs irregularly. Few species have colonized the sandy beaches: Mertensia maritima and Matricaria ambigua; the latter grows on the upper reaches of the beach. Sand dunes are vegetated mostly by Elymus arenaria.

3.0 METHODS

From mid-June until 7 September 1985, 1986 and 1987, a daily record was kept of the number of birds and species seen in or near a 26 km^2 study area at Toker Point. During the breeding season, the entire study area was checked every three days. When nests were found, location, date, number of adults, eggs or young, nest site description, and other comments were recorded. The study area was checked less regularly after 25 July. In August and early September, coastal observations of birds present at sea were undertaken about twice a week, in addition to inland surveys.

The number of hours of observation and kilometres hiked each day were recorded. A total of 263 days of field-work was conducted over the three years, resulting in an estimated 2,200 hours of observation over a distance of approximately 2,565 km.

Breeding species were classified as confirmed or suspected. A breeding record was "confirmed" if any of the following were found: a nest with eggs or young, a recently used nest, egg shells, a recently fledged young, or a brood. A breeding record was suspected when apparently breeding individuals were observed in suitable nesting habitat in breeding season. They were usually performing either territorial or defensive displays but their nest or young could not be found. Because of the uncertainty of many records, totals of suspected breeders are not given in this report.

Additional observations recorded by other observers in early spring at Tuktoyaktuk, or offshore Toker Point from a ship in August and September 1987, are included to provide a larger perspective on the regional avifauna.

4.0 RESULTS AND DISCUSSION

4.1 Methodological limitations

Migratory bird surveys are subject to a number of biases such as the observers' identification skills, weather, and light conditions. In this study, the variability of the sampling procedure and the lack of systematic coverage must be also considered. Some habitats were sampled more intensively than others, and no sampling occurred in early spring and late fall. Given the survey method, we cannot determine the absolute number or rate of turnover of birds nesting, moulting or staging in the area. However, these records do provide insight into the importance of the area to birds and the relative abundance of

each species.

4.2 Breeding Status and Relative Abundance

We recorded over 120,000 sightings of birds, including 74 species, at Toker point between 1985 and 1987 (one 10-bird flock = 10 sightings; one sighting per day for a bird that was observed several times in one day or during several days). In 1987, another 12 species were recorded within 100 km of the study area but are not included in the following discussion. Thirty species were confirmed breeders and 12 were suspected breeders (Table 1). Seventeen species were confirmed breeders during all three consecutive summers of the study period. Others nested during one or two summers but were suspected, or non-breeders, during other summers. The breeding status of some species remained unclear due to the difficulty in locating their nests and young. Average clutch and brood sizes based on all records compiled during the three years are presented in Table 2. Few species were exclusively reported as migrants, breeders or moulters. Many (e.g. Greater White-fronted Goose, Brant, Northern Pintail, Oldsquaw) completed all these phases of their life cycle at Toker Point.

No important colony or outstanding concentration of nests of any species occurred at Toker Point. The species with the most confirmed breeding records were the Red-throated Loon, Pacific Loon, Glaucous Gull, Lapland Longspur, Oldsquaw, Willow Ptarmigan, Semipalmated Sandpiper, Savannah Sparrow, Greater White-fronted Goose, Northern Pintail, Brant, Tundra Swan, and

Table 1. Bird breeding records at Toker Point, 1985-1987.

Species	Confirmed 1985	1986	1987	Suspected 1985	1986	1987
Red-throated Loon*	42	32	43			
Pacific Loon*	26	17	39			
Tundra Swan	9		5		x	
G. White-fronted Goose	7	3	11			
Brant	2	1	11			
Green-winged Teal	4	4	2			x
Northern Pintail	8	4	4			
Greater Scaup			1	x	x	
Lesser Scaup	3				x	
Scaup sp.					x	x
King Eider				x	x	
Oldsquaw	22	7	8			
Red-breasted Merganser				x	x	x
Northern Harrier				x		
Rough-legged Hawk	1	3	1			x
Willow Ptarmigan	14	11	8			
Sandhill Crane	4		2			
Lesser Golden-Plover	1	1	2	x	x	x
Semipalmated Plover	2					
Whimbrel				x	x	x
Semipalmated Sandpiper	11	5	9	x		x
Pectoral Sandpiper	1		4	x		x
Stilt Sandpiper	3	6	2	x		
Long-billed Dowitcher			1	x	x	
Common Snipe	1			x	x	x
Red-necked Phalarope	5	2	6	x		x
Red Phalarope					x	
Parasitic Jaeger	2		1		x	
Long-tailed Jaeger				x	x	x
Glaucous Gull	24	17	18			x
Sabine's Gull			2			x
Arctic Tern	2	2	2			x
Short-eared Owl						x
Common Raven			1			
American Robin				x	x	
Water Pipit			1			x
Yellow Warbler				x		
American Tree Sparrow			3	x		
Savannah Sparrow	4	3	17			
White-crowned Sparrow				x		x
Lapland Longspur	18	17	13			
Common/Hoary Redpoll						x
Total	216	135	217			

* Number of breeding pairs biased because prime objective of study was to locate all nesting loons.

Table 2. Clutch and brood sizes of bird species nesting at Toker Point, 1985-1987.

Species	Number of nests	Average number of eggs	Range	Number of broods	Average number of young	Range
Red-throated Loon*	113	1.8	1-2	40	1.5	1-2
Pacific Loon	9	1.5	1-2	29	1.3	1-2
Tundra Swan	7	3.7	3-4	10	2.8	1-5
G.White-fronted Goose	15	3.9	1-7	5	5.0	2-6
Brant	4	3.7	3-5	1	3.0	-
Green-winged Teal	2	7.5	7-8	4	6.5	5-10
Northen Pintail	6	6.1	5-9	13	4.7	1-9
Greater Scaup	1	8.0	-	-	-	-
Lesser Scaup	3	8.0	7-9	-	-	-
Oldsquaw	9	4.8	3-9	26	4.8	1-8
Rough-legged Hawk	6	3.5	3-4	4	2.5	2-3
Willow Ptarmigan	11	7.3	4-10	20	5.1	1-8
Sandhill Crane	4	2.0	-	1	1.0	-
Lesser Golden-Plover	-	-	-	4	1.5	1-2
Semipalmated Plover	-	-	-	2	1.5	1-2
Semipalmated Sandpiper	18	3.8	1-4	8	2.2	1-4
Pectoral Sandpiper	4	4.0	-	5	1.8	1-3
Stilt Sandpiper	8	3.7	3-4	5	2.2	1-4
Long-billed Dowitcher	1	4.0	-	-	-	-
Common Snipe	1	3.0	-	-	-	-
Red-necked Phalarope	9	3.3	1-4	4	1.7	1-3
Parasitic Jaeger	-	-	-	2	1.5	1-2
Glaucous Gull	2	2.0	1-2	2	2.0	-
Sabine's Gull	-	-	-	2	1.0	-
Arctic Tern	1	2.0	-	3	1.6	1-2
Common Raven**	-	-	-	1	?	-
Water Pipit	-	-	-	1	3.0	-
American Tree Sparrow	3	4.0	3-5	1	1.0	-
Savannah Sparrow	19	4.7	1-5	12	3.8	1-5
Lapland Longspur	31	4.3	1-6	18	2.5	1-5

* Number of nests high because a primary objective of the study was to locate all Red-throated Loon nests.

** Nested in a tower; contents of nest not observed; at least one young fledged.

Red-necked Phalarope. More loon nests were found than any other species because a prime objective of the monitoring study (see Dickson 1987) was to find all loon nests in the study area. The number of breeding records of passerines and shorebirds were likely underestimated as their nests could not be found on many occasions.

In all cases, the clutch sizes identified for all confirmed breeders concurred with those given in Godfrey (1986). The single Long-billed Dowitcher clutch (4 eggs) is of particular interest as little information is available on this rare Canadian breeder (Godfrey 1986; see Species Accounts).

Large numbers of non-breeding birds were recorded, particularly moulting and migrating waterfowl. The Oldsquaw, Common Merganser, Red-breasted Merganser, Scaup. sp., Northern Pintail, Surf Scoter and American Wigeon were common moulting ducks, as suggested by the numerous flocks and rafts of flightless individuals.

The Lesser Snow Goose was the most abundant fall migrant with a yearly average of nearly 13,000 individuals (over 30% of all sightings). However, they were present for only a short period in late August and early September (Table 3). This colonial species is common in the Canadian western Arctic. Approximately 98,250 pairs nested on Banks Island, and 700 and 3,300 pairs nested on Kendall Island and at Anderson River Delta respectively, in 1987 (R. Kerbes, pers. comm.). In the fall, over 250,000 Lesser Snow Geese may fly over the Delta region to congregate on the Yukon/Alaska North Slope before heading south (T. Barry, pers.

Table 3. Average annual number of sightings per species at Toker Point, 1985-1987.

Species	Average number of sightings per year	Maximum number of sightings in one day	Average number of daily sightings (when present)	Average number of days with at least one sighting	Number of years of occurrence (max.3)
Lesser Snow Goose	12,882	8,284	899	14	3
Lapland Longspur	3,307	268	46	73	3
Oldsquaw	2,425	464	36	67	3
Glaucous Gull	2,179	193	30	74	3
Common Merganser	1,870	1,700	243	8	2
Red-breasted Merganser	1,481	1,300	87	17	3
Red-throated Loon	1,450	75	23	63	3
Savannah Sparrow	1,374	98	22	63	3
Gr. White-fronted Goose	1,170	185	31	56	3
Scaup sp.	1,167	500	27	43	3
Pacific Loon	1,072	77	16	67	3
Red-necked Phalarope	971	305	15	66	3
Pectoral Sandpiper	884	249	14	63	3
Northern Pintail	875	157	15	59	3
Brant	814	355	24	33	3
Tundra Swan	635	40	10	64	3
Lesser Golden-Plover	617	106	9	66	3
Semipalmated Plover	604	79	10	58	3
Willow Ptarmigan	414	33	8	53	3
Common/Hoary Redpoll	381	51	9	43	3
Stilt Sandpiper	376	31	8	49	3
Arctic Tern	374	39	7	50	3
Sandhill Crane	361	21	6	61	3
Surf Scoter	309	251	36	9	3
American Wigeon	282	171	35	12	3
White-winged Scoter	247	195	14	17	3
American Tree Sparrow	228	28	5	44	3
Parasitic Jaeger	216	17	4	55	3
Common Snipe	155	12	4	39	3
Green-winged Teal	140	17	4	36	3
Long-billed Dowitcher	108	29	4	25	3
Common Raven	85	17	2	34	3
Rough-legged Hawk	80	11	3	31	3
Whimbrel	69	22	3	20	3
Long-tailed Jaeger	62	13	3	22	3
Sabine's Gull	52	16	3	18	3
Sanderling	47	27	8	6	3
Baird's Sandpiper	33	42	7	5	3
Northern Harrier	30	4	1	22	3
Water Pipit	25	8	3	10	3
King Eider	24	30	5	5	3
Common Goldeneye	20	15	5	4	2
Rock Ptarmigan	13	14	3	5	3
White-crowned Sparrow	12	4	2	7	3
Canada Goose	12	12	9	1	2
Black-bellied Plover	9	8	3	3	3
Horned Lark	8	6	3	3	2

Table 3. Continued.

Species	Average number of sightings per year	Maximum number of sightings in one day	Average number of daily sightings (when present)	Average number of days with at least one sighting	Number of years of occurrence (max.3)
Ruddy Turnstone	7	11	4	2	2
Buff-breasted Sandpiper	7	7	3	2	1
Short-eared Owl	6	2	1	6	3
Common Loon	5	3	2	3	3
Yellow-billed Loon	4	3	1	3	2
Red Phalarope	4	2	2	2	2
Peregrine Falcon	4	2	1	3	2
Semipalmated Plover	3	4	3	1	2
Pomarine Jaeger	3	4	3	1	3
Yellow Warbler	3	3	2	2	2
American Robin	3	2	1	3	2
Lesser Yellowlegs	3	4	2	2	2
Snowy Owl	2	1	1	2	3
Hudsonian Godwit	2	3	2	1	2
Gyrfalcon	2	1	1	2	2
Merlin	2	2	1	1	2
Bald Eagle	1	1	1	1	1
White-rumped Sandpiper	1	1	1	1	2
Mallard	1	2	2	<1	1
Hermit Thrush	1	2	2	<1	1
Tree Swallow	<1	1	1	<1	1
Empidonax Flycatcher	<1	1	1	<1	1
Snow Bunting	<1	1	1	<1	1
Common Eider	<1	1	1	<1	1
Yellow Wagtail	<1	1	1	<1	1

comm.). The relatively high numbers of Lesser Snow Geese, compared to other species, may be partly due to the conspicuous nature of the species.

Three orders of birds were particularly common at Toker Point: Anseriformes - 66% of all sightings; Charadriiformes - 17% (shorebirds - 10%; larids - 7%); and Passeriformes - 14%. Waterbirds dominated Toker Point's avifaunal community. The waterfowl and shorebird assemblage comprised 18 species each, and the passerine assemblage, 15 species.

4.3 Temporal Abundance and Distribution

Bird numbers varied considerably through time (Table 4). The temporal change in abundance and numbers of species is depicted in Figure 2. Maximum abundance was recorded in late August and maximum number of species in mid-August. Unfortunately, we do not have records for significant portions of the spring and fall migrations - before 10 June and after 7 September. The study period lasted 13 weeks per year whereas migratory birds are present in the region during approximately 25 weeks (Salter et al. 1980). Most of the spring migrants arrive in the second half of May and early June. Waterfowl species may arrive in early May, but most species migrate en masse through the area in the first days of June (B. Bromley, pers. comm.). This corresponds with the timing of the spring thaw. In a typical year, the snow cover and ice on the marshes has melted by the end of the first week of June (Dickson 1987). In the fall, swans, cranes, longspurs, gulls and jaegers can be present until late September (Salter et al.

Table 4. Average weekly number of sightings per species at Toker Point, 1985-1987.

Species	from / to	11Ju 14Ju	15Ju 21Ju	22Ju 28Ju	29Ju 5Jy	6Jy 12Jy	13Jy 19Jy	20Jy 26Jy	27Jy 2Au	3Au 9Au	10Au 16Au	17Au 23Au	24Au 30Au	31Au 7Se
Red-throated Loon		24	138	127	122	90	77	113	148	123	107	141	118	119
Pacific Loon		31	118	82	73	76	89	78	79	67	68	92	123	96
Common Loon		0	0	0	0	0	<1	0	<1	1	2	<1	0	1
Yellow-billed Loon		0	0	0	0	<1	<1	<1	2	1	0	0	0	0
Tundra Swan		42	60	57	49	63	87	66	50	33	46	29	53	27
Gr. White-fronted Goose		60	248	203	152	40	15	55	87	83	292	193	233	106
Lesser Snow Goose		<1	13	5	0	0	0	0	0	0	3	55	8993	3814
Brant		20	52	28	35	14	4	20	15	0	56	59	178	333
Canada Goose		0	0	5	6	0	0	0	0	0	0	0	0	0
Green-winged Teal		3	20	13	3	7	6	2	11	26	14	12	12	14
Mallard		0	0	0	0	0	0	0	0	0	<1	<1	0	0
Northern Pintail		26	112	58	53	15	22	37	138	97	187	72	35	21
American Wigeon		<1	<1	0	<1	0	0	0	37	42	165	34	1	1
Scaup sp.		12	88	47	53	23	97	111	222	88	214	71	56	84
Common Eider		0	0	<1	0	0	0	0	0	0	0	0	0	0
King Eider		0	13	7	2	0	1	0	<1	0	0	0	0	0
Oldsquaw		28	261	184	166	119	159	290	380	187	408	104	66	72
Surf Scoter		0	2	0	2	0	12	22	140	59	71	<1	0	<1
White-winged Scoter		2	50	42	15	17	68	3	<1	43	<1	2	1	0
Common Goldeneye		0	0	0	0	1	0	0	2	0	0	2	2	4
Common Merganser		0	0	60	2	60	250	201	633	0	568	18	1	77
Red-breasted Merganser		2	24	5	2	6	202	210	367	2	<1	60	444	157
Bald Eagle		0	0	0	0	0	0	0	0	0	<1	0	0	1
Northern Harrier		1	3	3	1	<1	1	<1	3	1	2	2	3	7
Rough-legged Hawk		2	12	7	9	8	8	7	4	4	4	5	6	3
Merlin		0	0	0	0	0	0	0	0	0	0	<1	1	<1
Peregrine Falcon		0	0	<1	<1	<1	<1	0	0	0	1	0	<1	<1
Gyrfalcon		0	<1	0	0	0	0	0	0	0	0	<1	<1	0
Willow Ptarmigan		8	42	23	18	19	18	22	41	28	38	30	44	79
Rock Ptarmigan		0	0	0	0	<1	0	<1	1	0	1	4	0	6
Sandhill Crane		10	59	46	31	37	30	27	27	22	20	22	20	15
Black-bellied Plover		0	0	1	0	<1	0		1	3	2	0	0	2
Lesser Golden-Plover		6	39	31	26	30	38	94	49	76	111	59	33	25
Semipalmated Plover		0	0	0	0	0	3	0	0	0	<1	0	0	0
Lesser Yellowlegs		<1	2	0	0	0	0	0	0	0	0	<1	0	0
Whimbrel		1	9	7	10	11	24	1	2	2	1	0	0	0
Hudsonian Godwit		0	0	0	0	0	0	0	0	<1	2	0	0	0
Ruddy Turnstone		0	0	0	0	0	0	0	0	0	5	<1	1	0
Sanderling		0	0	0	0	0	0	5	1	4	7	2	<1	28
Semipalmated Sandpiper		14	81	73	56	84	80	53	28	65	53	13	3	<1
White-rumped Sandpiper		0	0	0	0	0	0	0	<1	<1	0	0	2	0
Baird's Sandpiper		0	0	0	0	0	0	0	1	17	13	<1	<1	1
Pectoral Sandpiper		5	24	17	22	36	95	78	88	131	137	98	116	37
Stilt Sandpiper		18	83	79	70	52	37	12	10	4	7	4	<1	0
Buff-breasted Sandpiper		0	0	0	0	0	0	0	0	4	2	<1	0	0
Long-billed Dowitcher		0	6	8	14	13	8	4	6	1	2	10	23	13
Common Snipe		7	50	41	21	13	4	2	3	3	2	2	2	1
Red-necked Phalarope		31	134	117	106	65	82	82	43	51	181	33	32	13
Red Phalarope		0	0	0	0	0	<1	2	1	0	0	0	0	0

Table 4. Continued.

Species	from / to	11Ju 14Ju	15Ju 21Ju	22Ju 28Ju	29Ju 5Jy	6Jy 12Jy	13Jy 19Jy	20Jy 26Jy	27Jy 2Au	3Au 9Au	10Au 16Au	17Au 23Au	24Au 30Au	31Au 7Se
Pomarine Jaeger		1	2	0	0	0	0	0	0	0	0	0	0	0
Parasitic Jaeger		2	23	31	25	30	39	14	19	7	8	9	5	6
Long-tailed Jaeger		6	12	10	10	7	9	2	0	0	5	<1	0	0
Glaucous Gull		42	210	187	153	175	212	202	204	128	146	153	108	264
Sabine's Gull		5	17	6	4	3	7	2	4	0	5	<1	0	0
Arctic Tern		18	54	45	20	57	40	31	47	26	25	9	<1	<1
Snowy Owl		0	0	0	<1	<1	<1	0	<1	0	0	<1	<1	0
Short-eared Owl		<1	2	<1	<1	<1	<1	<1	0	0	<1	<1	0	1
Empidonax Flycatcher		0	0	0	0	0	0	0	0	0	0	0	0	<1
Horned Lark		0	0	0	0	0	0	0	2	2	1	0	0	3
Tree Swallow		0	0	<1	0	0	0	0	0	0	0	0	0	0
Common Raven		<1	11	7	6	4	2	2	4	8	5	3	8	23
Hermit Thursh		0	0	0	0	1	0	0	0	0	0	0	0	0
American Robin		0	0	<1	0	<1	<1	0	0	0	0	0	0	<1
Yellow Wagtail		0	0	0	0	0	0	0	0	0	<1	0	0	0
Water Pipit		0	0	0	0	<1	<1	4	5	<1	5	4	3	4
Yellow Warbler		<1	<1	1	0	0	0	0	0	0	0	0	<1	0
American Tree Sparrow		13	66	52	19	21	10	8	4	5	8	7	8	8
Savannah Sparrow		17	182	216	169	210	195	122	64	76	45	40	25	13
White-crowned Sparrow		<1	2	3	1	2	2	0	<1	0	0	0	<1	0
Lapland Longspur		62	398	269	262	252	205	131	145	172	242	238	487	361
Snow Bunting		0	0	0	0	0	0	0	0	0	0	<1	0	0
Common/Hoary Redpoll		4	54	70	48	44	41	27	26	14	16	14	16	6

Note: First observations were recorded on 11 June in 1985, 12 June in 1986, and 14 June in 1987.

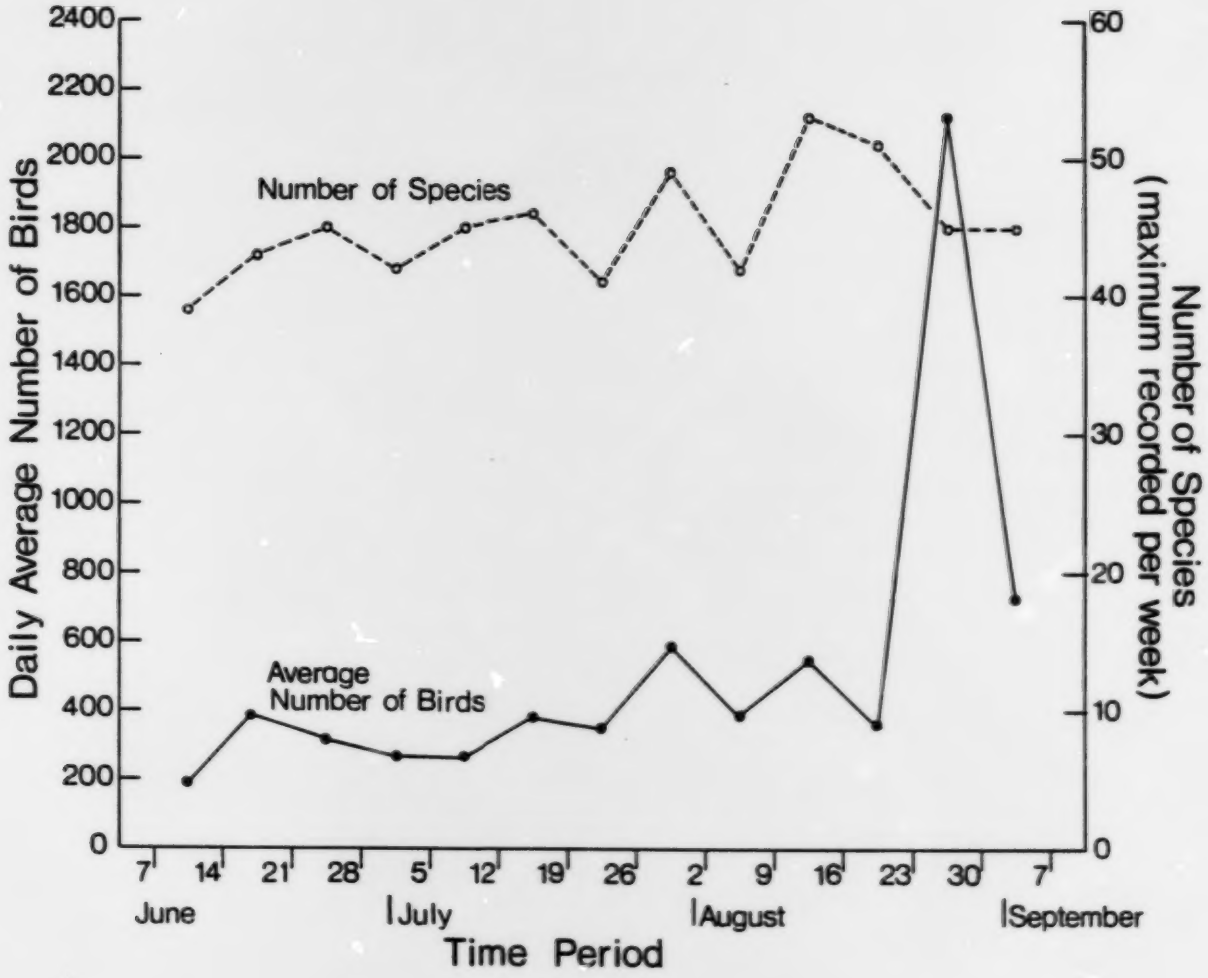

Figure 2. Seasonal variation in number of birds and bird species at Toker Point, 1985-1987.

1980).

Relatively low numbers of birds were recorded in the first few days of the study period but by the third week of June, most of the breeding birds had arrived and many species were already incubating. In the peak of the incubation and hatching seasons, in the first half of July, bird sightings were relatively few. During this period birds were discreet, likely to enhance the chances of survival of their offspring.

By mid-July, bird numbers increased due to the arrival of thousands of moulting waterfowl. This lasted until the end of August and has been documented in other areas of the Tuktoyaktuk Peninsula (Cornish and Allen 1982). The summer moult migration of seaducks is substantial in the Beaufort Sea. It involves tens of thousands of birds of several species (Johnson et al. 1975). The presence or absence of large rafts of moulting ducks at Toker Point made the local bird population fluctuate widely over short periods of time. Because the coastline was surveyed no more than three times per week, we suspect that many rafts were never detected as they moved along the coastline.

By the end of August many early fall migrants, namely Arctic Terns, Sabine's Gulls and most shorebird species, had left Toker Point, but numbers of waterfowl increased steadily to peak in the last days of August and early September (Table 4; Fig. 2). Large flocks of Lesser Snow Geese and Brant, and smaller flocks of Greater White-fronted Geese and ducks were sighted. Species diversity peaked in mid-August when moulters and early fall

migrants were present, but the abundance of birds peaked in late August because of the large influx of geese and ducks.

The abundance of the 35 most common species was compared between 1985 and 1987. The yearly totals of sightings of some species varied substantially. Five species declined continuously during the study period: Lesser Snow Goose, White-winged Scoter, Stilt Sandpiper, Long-tailed Jaeger and Common Raven. Nine species increased continuously from 1985 to 1987: Northern Pintail, Common Merganser, Rough-legged Hawk, Lesser Golden-Plover, Pectoral Sandpiper, Red-necked Phalarope, American Tree Sparrow, Savannah Sparrow and Lapland Longspur. The 21 other species fluctuated widely in either directions (Table 5).

The significance of these sometimes dramatic fluctuations must be understood in light of the relatively low number of sightings recorded for each species. Yearly fluctuations of a few hundred or thousand individuals do not likely provide grounds to determine population trends. They may only reflect shifts in local distribution. For example, fewer Lesser Snow Geese were observed each year at Toker Point between 1985 and 1987. Brant numbers decreased between 1985 and 1986 but increased between 1986 and 1987 (Table 5). These fluctuations seemed to be only of local significance as the western Canadian Arctic population of Lesser Snow Geese is currently stable after having increased between 1952 and 1976 (Kerbes 1981), and the Pacific Brant population is increasing (Anon. 1986).

Despite the fluctuations reported above, a remarkably similar

Table 5. Fluctuations of annual sightings at Toker Point, 1985-1987.

	Number of sightings			Percent change	
	1985	1986	1987	1985-86	1986-1987
Tundra Swan	691	601	612	- 13	+ 2
Gr. White-fronted Goose	1246	2300	1764	+ 84	- 23
Lesser Snow Goose	18051	12505	8093	- 30	- 35
Brant	878	623	941	- 29	+ 51
Green-winged Teal	141	172	108	+ 21	- 37
Northern Pintail	627	708	1289	+ 13	+ 82
American Wigeon	112	105	628	- 62	+ 498
Scaup sp.	392	1584	836	+ 304	- 47
Oldsquaw	1314	3490	2472	+ 165	- 29
Surf Scoter	5	674	248	+ 13,380	- 63
White-winged Scoter	399	254	87	- 36	- 65
Red-breasted Merganser	1827	2567	48	+ 40	- 98
Common Merganser	0	613	4998	-	+ 715
Rough-legged Hawk	51	85	103	+ 66	+ 21
Willow Ptarmigan	431	361	449	- 16	+ 24
Sandhill Crane	324	415	345	+ 28	- 17
Lesser Golden-Plover	455	588	808	+ 29	+ 37
Whimbrel	72	92	44	+ 28	- 52
Sanderling	26	90	26	+ 246	- 71
Semipalmated Sandpiper	349	742	720	+ 1	- 3
Pectoral Sandpiper	784	827	1042	+ 5	+ 26
Stilt Sandpiper	435	418	275	- 4	- 34
Long-billed Dowitcher	204	38	81	- 81	+ 113
Common Snipe	161	174	129	+ 8	- 26
Red-necked Phalarope	759	1052	1101	+ 39	+ 5
Parasitic Jaeger	252	163	234	- 35	+ 44
Long-tailed Jaeger	76	62	48	- 18	- 22
Glaucous Gull	2170	2388	1979	+ 10	- 17
Sabine's Gull	51	46	60	- 10	+ 30
Arctic Tern	408	320	395	- 21	+ 23
Common Raven	141	66	49	- 53	- 26
American Tree Sparrow	115	214	354	+ 86	+ 65
Savannah Sparrow	68	1574	1864	+ 129	+ 18
Lapland Longspur	248	3502	3938	+ 41	+ 12
Common/Hoary Redpoll	20	150	792	- 25	+ 428
Total waterfowl	25683	26196	22124	+ 2	- 15
Total shorebirds	3245	4021	4226	+ 24	+ 5
Total larids	2957	2979	2716	+ 1	- 9
Total passerines	3622	5506	6997	+ 52	+ 27

Note: only species with more than 100 total sightings were selected.

total of confirmed breeding pairs of all species was identified in 1985 (216) and 1987 (217), although totals for individual species varied substantially (Table 1). In 1986, the number of confirmed breeding pairs was much lower as it dropped by approximately 38%. It appears to have been caused by an exceptionally late spring (Dickson 1987).

4.3 Spatial Distribution

The spatial distribution of birds at Toker Point was likely dictated by their habitat requirements for nesting, moulting and foraging. As a rule, bird species preferring upland tundra (e.g. Lapland Longspur, Willow Ptarmigan) were scattered over large tracts of land in no particular concentration, whereas waterbirds (e.g. Oldsquaw, Red-necked Phalarope) were concentrated around wetlands. Habitats where bird concentrations occurred are depicted in Figure 3.

Breeding waterbirds were concentrated in several lowlands, or basin complexes, where highly convoluted thermokarst ponds and small lakes occurred. These shallow, landlocked, freshwater tundra ponds featured islets and irregular peninsulas. Red-throated Loons, ducks, terns and some shorebirds were common nesters in those locations. Two small colonies (6 and 24 pairs) of Glaucous Gulls nested in two of the study area's lowlands.

Some landlocked lakes also attracted noticeable concentrations of waterbirds. Geese, swans, gulls, and terns nested on islands or on hummocks along wet shorelines. Pacific Loons, sometimes three or four pairs per lake, concealed their nests along the

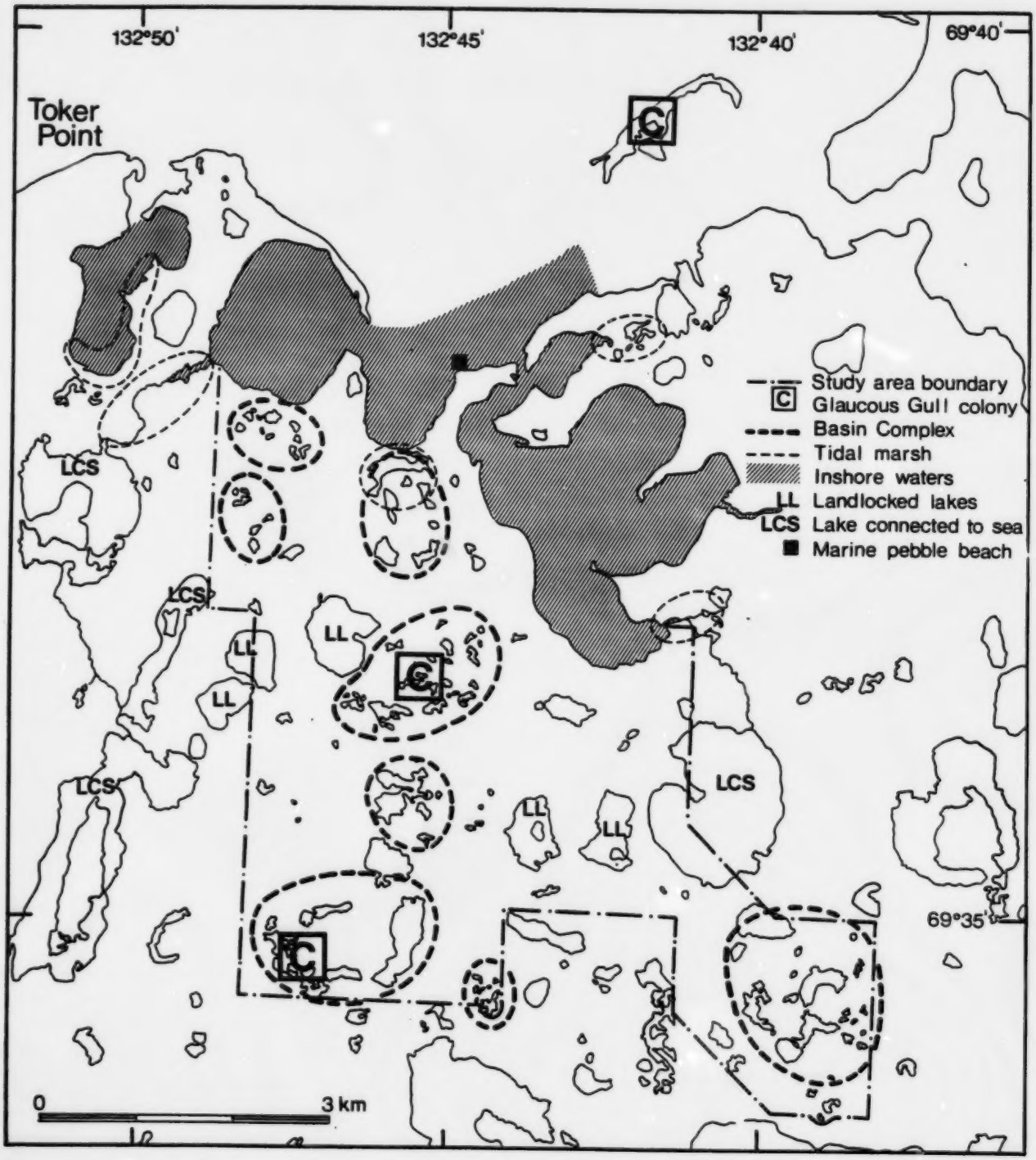

Figure 3. Spatial distribution of migratory birds at Toker Point, 1985-1987.

shore, in the emergent vegetation. Shallow freshwater lakes connected to the sea, were particularly good for foraging shorebirds and ducks, particularly Semipalmated Sandpipers and Baird's Sandpipers, Northern Pintails and American Wigeons. Two of these lakes were present in and near the study area. They featured turbid waters, beaches of sand, mud and pebbles, and shallow waters.

During migration, concentrations of migratory birds occurred in four brackish tidal marshes, at the bottom of deep embayments, where estuarine conditions prevailed. Flightless geese and their crèches, such as Brant, rafts of moulting Common Mergansers, flocks of waders, such as Pectoral Sandpipers and Stilt Sandpipers, and passerines, such as Lapland Longspurs and Water Pipits, foraged extensively in those locales.

Rafts of moulting seaducks, such as Scaup sp., Oldsquaw and Surf Scoters, were present in inshore coastal waters or in sheltered embayments. Estuarine to marine conditions prevailed in those embayments. Red-throated Loons and Common Mergansers were regularly observed feeding in the tidal currents created by the narrow openings of some embayments.

With the exception of one pebble beach, all coastal beaches were sandy within the study area. At low tide, several species of waders, Ruddy Turnstones in particular, were observed regularly on this pebble beach. Birds also congregrated in great numbers two kilometres offshore, on a sandy island/barrier beach. A few pairs of Glaucous Gulls and probably a few Arctic Terns (see

species accounts) nested there. Hundreds of gulls regularly roosted on the island, particularly at the end of the summer. Hundreds of moulting mergansers also loafed on its beaches in August.

5.0 SPECIES ACCOUNTS

5.1 Introduction

The abundance of each species has been classified as follows:

ABUNDANT: observed each year; occurred throughout preferred habitat(s) and/or in migration in consistently high numbers; more than 6,000 records.

VERY COMMON: as above, but between 3,000 and 6,000 records.

COMMON: as above, but in moderate numbers: between 1,000 and 3,000 records.

FAIRLY COMMON: as above, but between 100 and 1,000 records.

UNCOMMON: usually observed each year; occurred in low numbers or in restricted habitats, between 10 and 100 records.

RARE: observed in two or less years or sporadic observations: between 2 and 10 records.

ACCIDENTAL: only one record or outside its normal range.

References on world distribution and biogeographical affinity are from Renaud et al. (1979), Renaud et al. (1981), Harrison (1983), Howard and Moore (1984), Godfrey (1986), and Hayman et al. (1986). References on regional distribution and abundance are from Porsild (1943), Salter et al. (1980), Johnson et al. (1975), Barry and Barry (1982), Martell et al. (1984), Alliston (1985), Cornish and Dickson (1985), Dickson (1985), Hawkings (1987), Alexander and Hawkings (1988), Dickson et al. (1988), and Ealey et al. (1988). Additional references were added in the accounts.

The Canadian low-Arctic is defined as the continental mainland of the Northwest Territories, Northern Quebec and the southern islands of the Canadian Arctic archipelago (roughly south of the 70th parallel). The high-Arctic includes most of the central and northern Arctic archipelago (see Wiken 1986). Pan-arctic species are distributed throughout the low and high-Arctic.

5.2 Species Observed at Toker Point

RED-THROATED LOON - Very common summer resident, confirmed breeder. Nested on small coastal ponds and fed at sea. Nests were usually platforms built in emergent vegetation along shoreline. Occasionally nested on dry shore without a platform. Arrived as soon as nesting ponds were thawed. Circumpolar pan-arctic species that nests throughout the Delta region, it is most common along the coast. 4,351 records.

PACIFIC LOON - Very common summer resident, confirmed nester. Nested on large lakes, often more than one pair per lake. Nests were platforms usually in emergent vegetation, either along the lakeshore or by an island. Fed primarily in lakes where they nested, although they were occasionally seen feeding in marine areas. Appeared to feed invertebrates to their young. One pair moved its brood from a large coastal pond to a nearby tidal marsh, completing an overland trek of approximately 100 m. Arrived on nesting territories as soon as open water occurred along the lakeshores. Nearctic and primarily western species of low-arctic affinity, it is the most common loon species of the Delta region, where it nests south and north of the treeline. 3,217 records.

COMMON LOON - Uncommon summer transient, all sightings were at sea in mid-summer, solitarily or in pairs. Holarctic, mostly subarctic, species which nests infrequently in the forest and rarely on the tundra in the Delta region. 16 records.

YELLOW-BILLED LOON - Uncommon summer transient, all sightings were at sea in mid-summer, solitarily or in pairs. Holarctic species of low-arctic affinity; in North America it nests mainly in the central Arctic, east of the Delta region. It breeds infrequently in the area of Liverpool Bay and the adjacent upland lakes. 13 records.

TUNDRA SWAN - Common summer resident and migrant, confirmed breeder. Built large nests on dry upland tundra or on hummocky islands in lakes. There was no nesting recorded in 1986. Young were observed as early as 2 July (1987), suggesting that eggs were laid as early as 1 June. Most sightings of family groups and non-breeders during the moult were on large freshwater lakes. Circumpolar species, this Nearctic subspecies is of low-arctic affinity. It commonly nests on the tundra and rarely in the forests of the Delta region. 1,904 records.

GREATER WHITE-FRONTED GOOSE - Very common summer resident and migrant, confirmed breeder. Pairs nested solitarily on dry hummocks in lowlands surrounded by wet tundra or on tussock tundra adjacent to wetlands. Nestlings were seen as early as 2 July suggesting that eggs were laid as early as 5 June. Numerous crèches of flightless adults and young were observed; one, in 1987, comprised 41 adults and 70 young. In mid-summer, this species was frequently observed on the tundra, in tidal marshes,

on beaches or at sea in sheltered embayments or lagoons. During fall migration, it was usually seen in small flocks of less than 20 individuals. Circumpolar species of low-arctic affinity, it commonly nests on the tundra of the Delta region. 5,310 records.

LESSER SNOW GOOSE - Abundant fall migrant. Spring migration begins in late May and is completed by mid-June (T. Barry, pers. comm.), when our study period began. During fall migration, mostly observed in large flocks flying westsouthwest. The geese sometimes landed at Toker Point to feed on the tundra or to avoid unfavourable winds. Fall 1987 migration delayed due to persistent SW winds. Three blue geese were observed in 1985. Nearctic species and subspecies of low-arctic affinity, it nests in the Delta region (kendall Island). 38,649 records.

BRANT - Common summer resident, common fall migrant, confirmed breeder. Nested solitarily or in small colonies on dry hummocks along lake shores, or on dry islands. Crèches of flightless adults and young were regularly observed in tidal marshes; one comprised 20 adults and 20 young. Numerous flocks were also seen on the wing. Circumpolar species of high-arctic affinity, it nests in small colonies on the tundra of the Delta region. All closely observed individuals featured dark underparts, as in Branta bernicla nigricans. 2,442 records.

CANADA GOOSE - Uncommon late spring transient. All 35 sightings were recorded between 23 June and 3 July. There were no records in 1986. Nearctic species of wide distribution, this goose nests in the Delta region but appears to do so in relatively small numbers.

GREEN-WINGED TEAL - Fairly common summer resident, confirmed breeder. Nested on dry tundra, concealed by vegetation, between tussocks. Moulted in small numbers, in shallow lakes, among wigeons and pintails. Holarctic species of wide distribution, the nearctic subspecies is common in the wooded part of the Delta region and is frequently observed north of the treeline. 421 records.

MALLARD - Rare late summer transient. Only three records at Toker Point, all in mid-August 1987. One individual was also recorded in Tuktoyaktuk on 30 May 87. Holarctic species of wide distribution which usually nests south of the treeline. It commonly nests throughout the forested part of the Delta region and less commonly in the tundra areas. They are regularly observed north of the treeline. 4 records.

NORTHERN PINTAIL - Common summer resident, confirmed nester. Nested both on dry tundra, between tussocks and hummocks, and in willow/sedge wetlands. Holarctic species of wide distribution, it nests regularly as far north as the low-arctic tundra. It is a common dabbler of the Delta region. Flocks of non-breeding and post-breeding adults congregated to moult in shallow lakes, as indicated by scores of flightless adults. 2,624 records.

AMERICAN WIGEON - Fairly common summer resident, mostly present in the area to moult, as indicated by flocks of flightless adults in large shallow lakes. One pair in breeding plumage was observed once. Nearctic species, it is a common breeder in the wooded parts of the Delta region where the density of breeding wigeons is among the highest in North America (Bellrose 1976). However, few pairs nest north of the treeline. 845 records.

SCAUP SPP. - Very common summer resident. Of a total of 3,500 records, 551 were positively identified as Greater Scaup and 137 as Lesser Scaup. Despite these figures, the most common species could not be identified with certainty. Both species were confirmed breeders. The nests were usually concealed in wet sedges, adjacent to a freshwater pond. The Lesser Scaup, a Nearctic species, is the most common in the Delta region; it nests throughout the forested areas. The Greater Scaup, a Holarctic species, nests quite commonly in the region but primarily in coastal areas. Large rafts of flightless scaup were observed at sea or in sheltered bays during the moulting season.

COMMON EIDER - Accidental spring migrant. Only one spring record. Although not present at Toker Point during the study period, this Holarctic pan-arctic species, nests occasionally in the coastal zone of the Delta region. Most of the Pacific Common Eiders nest further east and north in the region (Barry 1986). It appears that Toker Point is not a traditional staging area for this species, either during the fall and spring migrations, or the moult migration. In early spring, thousands of eiders use the open water leads offshore in the Beaufort Sea pack ice (Alexander et al. 1988).

KING EIDER - Uncommon summer resident, suspected breeder. Pairs were repeatedly oberved in June, in the same freshwater ponds, within 100 m of the coastline. Other sightings were recorded at sea. Breeding has been confirmed at nearby Atkinson Point and we observed nesting activities at Nuvorak Point from 1985 to 1987. Circumpolar and pan-arctic species, it breeds in the coastal zone of the Delta region, but is more common further east or west (Barry 1986). 71 records.

OLDSQUAW - Abundant summer resident, confirmed breeder. It was the most common waterfowl species breeding at Toker Point. The nests were located near ponds or lakes, on dry grounds or hummocks, and were usually concealed by vegetation. Earliest record of young was on 13 July, suggesting that eggs were laid as early as 18 June. Numerous broods were observed on lakes and ponds after hatching, including a crèche of 2 females and 17 young on 24 July 1987. Numbers peaked when large rafts of moulting males and females were observed at sea. Few Oldsquaw were seen flying during that period. Circumpolar and pan-arctic species, it is the most abundant nesting duck in some parts of the Delta region, especially near the coast, and a common moulter along the Beaufort Sea coast. 7,276 records.

SURF SCOTER - Fairly common temporary resident. One pair was observed once prior to the moulting season. Numbers peaked when moulting rafts were observed at sea or in sheltered embayments. Most individuals were males and few were seen on the wing. They were often observed in association with scaup and Oldsquaw. Nearctic species, it generally breeds south of the treeline. It nests in abundance in the forested parts of the Delta region and aggregates in moulting flocks along the Beaufort Sea coastline. 927 records.

WHITE-WINGED SCOTER - Fairly common summer transient. Most birds were seen flying over Toker Point. No moulting raft was observed. Most records were recorded before August and were males probably migrating to moulting sites. One pair in breeding plumage was observed. Holarctic species, it mostly nests south of the treeline and is a common moulter along the Beaufort Sea coast. 740 records.

COMMON GOLDENEYE - Uncommon late summer transient. All birds were sighted at sea and were capable of flying. The birds appeared to be drakes in eclipse plumage and were probably post-moulting transients. Holarctic cavity nester which breeds as far north as the treeline, it nests in the forested areas of the Delta region. 61 records.

COMMON MERGANSER - Very common summer resident in 1987, fairly common in 1986, absent in 1985. Most sightings were recorded at sea, or in sheltered embayments and tidal marshes. Several birds were observed resting and loafing on sand beaches; a few sightings were recorded on freshwater lakes and creeks. Large rafts of flightless individuals were observed (up to 1,700 in one raft on 11 August 1987). Although males in eclipse plumage and females were positively identified, the sex of most individuals could not be determined with certainty. In mid-August 1987, thousands of feathers from moulting mergansers littered the local beaches. Moulting rafts were usually accompanied by dozens of Glaucous Gulls and a few jaegers performing kleptoparasitic behaviours. Flying individuals were observed by the end of August. Dense flocks were reported in 1974 in the Liverpool Bay and Eskimo Lakes area but there are few records in the Delta region. It was presumed that these flocks were in an aberrant moult migration. Holarctic species which nests south of the treeline, usually south of Great Bear Lake, it has a wide distribution in southern Canada. 5,611 records.

RED-BREASTED MERGANSER - Uncommon summer resident in 1987, common in 1986 and 1985, suspected nester. Most sightings recorded at sea, or in sheltered embayments and tidal marshes. Several birds observed resting on sand beaches. Often seen in large rafts of flightless birds. Many individuals appeared to be drakes in eclipse plumage, others could not be sexed with certainty. A raft of 1,300 birds was observed on 26 August 1985. Rafts of Red-breasted Mergansers usually did not mix with rafts of other moulting ducks, including Common Mergansers. In mid-August 1985 and 1986, local beaches were littered with thousands of merganser

feathers. Moulting rafts were usually accompanied by dozens of kleptoparasitic Glaucous Gulls and a few Parasitic Jaegers. Flightless birds were observed until September. However, many had regained their ability to fly by the end of August. Holarctic species of subarctic and low-arctic affinity, it nests commonly in the forested areas of the Delta region, and occasionally along rivers above the treeline and on the coast. Small flocks are known to moult along the Beaufort Sea coast. 4,442 records.

BALD EAGLE - Rare late summer transient. Both adult and juvenile birds observed only in 1985. This Nearctic species nests in the forested parts of the Delta region, but wanders north of the treeline to the coast. 4 records.

NORTHERN HARRIER - Uncommon summer resident, suspected nester in 1985. The female of this pair remained territorial for most of the summer, but no young was sighted. Numerous sightings were recorded in the first week of September. Number of sightings declined from 1985 to 1987. Holarctic species of wide distribution, it normally nests south of the treeline. Although commonly observed, few nests have been found in the Delta region. 89 records.

ROUGH-LEGGED HAWK - Fairly common summer resident, confirmed nester. All nests were on the ground, on dry open tundra. Several inactive nests were also found. Holarctic species of low-arctic affinity, it is widely distributed across the Canadian Arctic. The lack of rocky outcrops, steep riverbanks and bluffs does not prevent this species from nesting at Toker Point. 239 records.

MERLIN - Rare transient in late summer, no sighting in 1987. All sightings were of single birds. Holarctic species of wide distribution, it usually nests south of the treeline. In the Delta region, it nests occasionally in the forested areas and regularly wanders above the treeline to the coast. 5 records.

PEREGRINE FALCON - Uncommon transient, no sighting in 1987. All sightings were of single birds except for one pair on 12 August 1985. No nesting at Toker Point probably due to lack of suitable nesting sites. Subspecies were not identified. It is suspected that both Falco peregrinus anatum and F. p. tundrius occur in this area. Several active pairs of F. p. anatum nest south of the treeline, along the Mackenzie valley (M. Fournier pers. comm.). Cosmopolitan species, it has been observed throughout the Delta region. 11 records.

GYRFALCON - Rare transient in early and late summer, probably follows migrants; no sighting in 1986. All sightings were of single birds of the dark phase. Circumpolar pan-arctic species which probably does not nest at Toker Point due to lack of suitable nesting sites. It has been observed throughout the Delta region where it is a permanent resident. 5 records.

WILLOW PTARMIGAN - Common summer resident, confirmed nester. Nests were found on dry tundra, sometimes concealed by

vegetation. Hatchlings were observed as early as 30 June, suggesting that eggs were laid as early as 8 June. Some crèche-like formations were sighted: 6 adults and 8 young on 28 July 1986, and 4 adults and 12 young on 1 August 1987. Circumpolar species of low-arctic affinity, it is a year-round resident in the region and normally nests north of the treeline. It is the most abundant ptarmigan in the Delta region. 1,241 records.

ROCK PTARMIGAN - Uncommon summer transient. It is common but less numerous than Willow Ptarmigans on the Yukon North Slope. Courting behaviour and numerous pairs were observed at Atkinson Point but no nest was found in 1985. Circumpolar species of high-arctic affinity, it is a permanent resident in the region but occurs primarily along the coast. 38 records.

SANDHILL CRANE - Common summer resident, confirmed nester. Built large nests in wet lowlands or sedge meadows, in emergent vegetation. One nestling was observed on 28 June, suggesting that eggs may be laid as early as 1 June. Local breeding success appeared low as only one juvenile was ever observed (1987). Adults foraged on wet and dry tundra. Numerous non-breeders were present in the study area. Nearctic species also found in northeastern Siberia, the local subspecies is assumed to be Grus canadensis canadensis. Of low-arctic affinity, it nests widely in northern Canada and is a common nester on the tundra of the Delta region. 1,084 records.

BLACK-BELLIED PLOVER - Rare spring migrant, uncommon fall migrant. Individuals sighted in the fall had usually not completely acquired their winter plumage. Seen alone or in small flocks, on sand beaches, tidal flats, or on the shores of shallow freshwater lakes. Circumpolar wader of high-arctic affinity, this species nests infrequently east of the Delta region. During the breeding season, it has been observed at a number of scattered locations along and near the Beaufort Sea coast. 27 records.

LESSER GOLDEN-PLOVER - Common summer resident, confirmed breeder. No nest was found, only hatchlings. Territorial adults were regularly observed on dry upland tundra. Small and large flocks of migrants congregated in late summer. Adults had not completely acquired their winter plumage before leaving in the fall. Flocks of juveniles were seen by late August and September, after most adults had gone. Nearctic wader of low-arctic affinity, this species commonly nests in the Delta region. 1,851 records.

SEMIPALMATED PLOVER - Uncommon summer resident, confirmed breeder in 1985. No nest was found, only hatchlings. No sighting in 1986. Observed on a gravel shore of an inland lake, and on coastal sand beaches. Nearctic wader of low-arctic affinity, it nests in the Delta region, along the Arctic coast and along rivers with gravel banks. The relative scarcity of this species at Toker Point is probably due to the lack of gravel beaches for nesting. 10 records.

LESSER YELLOWLEGS - Rare transient in early summer, one record in late summer. Nearctic wader which normally nests south of the treeline. It nests throughout the forested part of the Delta region and is rarely seen north of the treeline to the coast. 8 records.

WHIMBREL - Fairly common summer resident, suspected breeder. Most sightings in early summer, no records past 14 August. Usually observed on relatively dry tundra where it was easy to locate due to its vociferous habits. Circumpolar wader of low-arctic affinity, it nests in low numbers in the Delta region. 208 records.

HUDSONIAN GODWIT - Rare late summer transient, no sighting in 1985. All sightings were of juveniles or adults in non-breeding plumage. Nearctic wader of restricted range and low-arctic affinity, it nests occasionally but is rarely seen in the Delta region. 7 records.

RUDDY TURNSTONE - Uncommon fall migrant, no sighting in 1986. Juveniles and adults were observed at the only pebble and gravel tidal spit of the study area. Circumpolar wader of high-arctic affinity, it is not known to nest in the Delta region. 21 records.

SANDERLING - Fairly common fall migrant. First flock observed as early as 22 July. It was always observed on coastal sand beaches. Circumpolar wader of high-arctic affinity. Several records throughout the Delta region suggests that, contrary to Martell's assessment (1984), it is not rare. It has been reported to nest near Tuktoyaktuk. 142 records.

SEMIPALMATED SANDPIPER - Common summer resident and migrant; most common breeding shorebird. Few sightings after 20 August. Nested on dry to wet tundra, between tussocks, and on ridges of polygons in low areas. Foraged regularly on the margins of shallow freshwater lakes or diverse tidal habitats. Nearctic wader of low-arctic affinity, it commonly nests on the tundra of the Delta region. 1,811 records.

WHITE-RUMPED SANDPIPER - Rare summer transient; always observed solitarily on the margins of shallow lakes, foraging with Semipalmated Sandpipers. Nearctic sandpiper of high-arctic affinity, this species has occasionally nested in the Delta region. Small flocks of fall migrants have been occasionally sighted on the Yukon North Slope. 3 records.

BAIRD'S SANDPIPER - Fairly common fall migrant, recorded as early as 1 August, in flocks of up to 40 birds. Observed foraging with Semipalmated Sandpipers in tidal marshes and on mud flats as well as sand beaches. Nearctic sandpiper of high-arctic affinity, this species nests occasionally in the Delta region and as far south as the alpine reaches of the southern Ogilvie Mountains, Yukon (Frisch 1982). 100 records.

PECTORAL SANDPIPER - Common summer resident, common fall migrant; fourth most common breeding shorebird. Nested in moist to wet tundra, often among tussocks. It frequently used the drier ridges of low-centred polygons. Large flocks of migrants were observed throughout August. Flocks of juveniles observed into September. Nearctic and Siberian wader of low-arctic affinity, this large sandpiper commonly nests in the coastal Delta region. Large flocks also migrate through the region. 2,653 records.

STILT SANDPIPER - Common summer resident, common spring migrant; third most common breeding shorebird. Nested on moist tundra, among tussocks. Foraged inland, in freshwater wetlands, but also in tidal habitats. Few observations (mostly juveniles) past 15 August. Western Nearctic wader of low-arctic affinity, it is a common nester in the coastal Delta region. 1,128 records.

BUFF-BREASTED SANDPIPER - Rare fall migrant, reported only in 1987. Observed solitarily or in small flocks, in tidal marshes or meadows flooded by storm surges. Recorded exclusively between 11-20 August. Nearctic wader of high-arctic affinity, this species occasionally nests in the Delta region. 20 records.

LONG-BILLED DOWITCHER - Fairly common summer resident, and spring and fall migrant; one confirmed breeding record in 1987. Nest located on a hummock surrounded by sedges, in a low-centred polygon. Eastern siberian and western Nearctic wader, this species has been rarely reported to nest in the Delta region. It is a first breeding record for the Tuktoyaktuk Peninsula. Lately, breeding records have also been confirmed on Fish Island, in the outer Mackenzie Delta (H.L. Dickson, pers. comm.). 323 records.

COMMON SNIPE - Fairly common summer resident, one confirmed breeding record in 1985. This species was commonly reported until mid-July of each year when the males stop performing their courtship display. One nest was found on moist tundra, in a low-centred polygon, between tussocks of sedges. This Holarctic species commonly nests throughout the forested part of the Delta region, but is less common north of the treeline. 464 records.

RED-NECKED PHALAROPE - Common summer resident, common spring and fall migrant; second most common breeding shorebird. Nested in wetlands, often in low-centred polygons. Nest was built near water and concealed by vegetation. After hatching, young and adults were found swimming on ponds or lakes. First young were seen as early as 13 July, suggesting that eggs were laid on 24 June. First fall flocks of adults were observed as early as 24 July and first flocks of juveniles as early as 8 August. A flock of 300 adults and juveniles was observed on 13 August 1987, on the edge of a large and shallow freshwater lake. Numbers of migrants dropped significantly after mid-August, but small flocks of juveniles were observed into September. Holarctic shorebird of low-arctic affinity, it nests commonly throughout the tundra and rarely in the forested part of the Delta region. 2,912 records.

RED PHALAROPE - Uncommon summer transient; two sightings in 1985, one probable nesting record in 1986, no sighting in 1987. Most sightings were between 12-18 July. Pairs were observed at Atkinson Point, one pair was seen copulating, but no nest was found. We observed several individuals in 1985 and 1986, at Nuvorak Point, 90 km to the east. Holarctic shorebird of high-arctic affinity, it nests occasionally on the coastal tundra of the Delta region. 12 records.

POMARINE JAEGER - Uncommon spring migrant, no record past 21 June. This circumpolar species of low-arctic affinity nests occasionally in the Delta region and has been frequently observed during spring migration. Colour phases were not recorded. Also recorded offshore Toker Point by DFO personnel, in August and September 1987. 10 records.

PARASITIC JAEGER - Fairly common summer resident, confirmed breeder. No evidence of colonial breeding recorded. Appeared to prefer lowlands and wet tundra for nesting. More non-breeders than breeders suspected to occur in the area as few nests were found. Colour phases were reported for 84% of all sightings; 60% were of dark phase and 40 %, of light phase plumage. This is in agreement with previous reports suggesting that the light phase is more common in the northern part of its breeding range (Harrison 1983). Mixed pairs were frequently observed. Holarctic pan-arctic species, it was the most frequently observed jaeger. It commonly nests on the tundra of the Delta region. 649 records.

LONG-TAILED JAEGER - Fairly common summer resident, suspected breeder. Colour phases were reported for 25% of all sightings; 93% were of light phase, and 7% of dark plumage. The dark phase is reported to be very rare (Harrison 1983). Circumpolar pan-arctic species, it commonly nests on the tundra of the Delta region. 186 records.

GlAUCOUS GULL - Abundant summer resident, confirmed breeder, most pairs were colonial. Two small colonies of 24 pairs and 6 pairs nested in the study area; the remaining pairs were scattered throughout the area. Most pairs preferred to nest on ridges of low-centred polygons, in lowlands which had a network of ponds. Isolated pairs frequently nested in proximity to loon and duck pairs and were seen to interact with them occasionally. Gulls regularly signaled the arrival of predators or intruders within 500 m of their nest. This may benefit other waterbirds breeding in the area, although many likely loose their offspring to gulls, as described in Dwernychuk and Boag (1971). One colony of approximately ten pairs also nested outside the study area, on a sandy offshore island. A few hundred individuals loafed regularly on this island at the end of the summer. Numerous non-breeders were present along on the coast but few inland. Immature or sub-adults were very rarely observed. As many as 200 gulls were recorded in one day. Large numbers of kleptoparasitic gulls congregated with moulting mergansers; some were observed to follow Belugas offshore. Few individuals were observed inland at the end of the summer. Circumpolar pan-arctic species, it nests

commonly along the coast of the Delta region. Was frequently recorded offshore by DFO personnel in August and September 1987. 6,537 records.

SABINE'S GULL - Fairly common summer resident, confirmed breeder. No nest was found, only fledgelings were observed. Based on repeated sightings of a pair during the nesting season, there was probably a nest on a large grassy island, in the middle of a lake, among pairs of Arctic Terns and Brant. Individuals nesting in a colony were observed in similar habitat and conditions at Nuvorak Point. Non-breeders were regularly observed in the study area. Few sightings were recorded after 1 August, none after 19 August. All late sightings were in coastal waters. Circumpolar gull of low-arctic affinity, colonies have been recorded in several locations along the coast of the Delta region. It was frequently recorded offshore by DFO personnel in August and September 1987. 157 records

ARCTIC TERN - Common summer resident, confirmed breeder. Only non-colonial pairs were confirmed to nest at Toker Point. There were likely two pairs on a grassy island in the middle of a lake in 1987 (see Sabine's Gull), as several individuals regularly hovered over this island early in the summer. Some years, there may have been another colony on the offshore sandy island (see Glaucous Gull), as approximately 20 adults were repeatedly observed at this location in August 1987. Single nesting pairs were often located on dry ridges among thermokarst ponds. Few sightings were recorded after 21 August. Holarctic circumpolar and pan-arctic species, it nests commonly throughout the Delta region. It was frequently recorded offshore by DFO personnel in August 1987. 1,123 records.

SNOWY OWL - Rare transient, only solitary individuals were observed. Five of the seven records occurred in 1987. Circumpolar pan-arctic year-round resident that occasionally nests in the Delta region. 7 records.

SHORT-EARED OWL - Uncommon summer resident, suspected nester. Holarctic species, it is regularly observed in the Delta region where it occasionally nests north and south of the treeline. 18 records.

EMPIDONAX FLYCATCHER - Accidental fall transient. Only one record on 3 September 1986. The Alder Flycatcher, a Nearctic species which usually nests south of the treeline, is the only Empidonax flycatcher that has been reported in the Delta region.

HORNED LARK - Uncommon late summer and fall migrant, seen only in 1986 and 1987. This species was always observed on sandy and poorly vegetated coastal bluffs. Cosmopolitan species, it is occasionally sighted on the tundra of the Delta region where it sometimes nests. 24 records.

TREE SWALLOW - Accidental summer transient. Only one record on 22 June 1986. Nearctic species rare in the Delta region, this cavity

nester normally nests south of the treeline. The first breeding record for the region was reported in a man-made structure, at Atkinson Point in 1984.

COMMON RAVEN - Fairly common summer resident. Number of sightings peaked in spring and fall. One active nest was located in a communication tower in 1987. Cosmopolitan species that is a common year-round resident and breeder in the Delta region. 256 records.

HERMIT THRUSH - Accidental summer transient. Observed in tall shrubs on the south-facing slope of a pingo, in 1985. This Nearctic species breeds south of the treeline and is widely distributed in North America. It has been reported in the forested part of the Delta region but is accidental north of the treeline. 4 records.

AMERICAN ROBIN - Rare summer temporary resident, suspected nester; one pair was sighted in high shrubs in 1986. Nearctic species which normally nests south of the treeline and in some locations on the low-arctic tundra. It is a summer resident in Tuktoyaktuk where it nests in man-made structures. It commonly nests throughout the forested parts of the Delta region. 9 records.

YELLOW WAGTAIL - Accidental summer transient; only one record on 14 August 1987. Observed with Water Pipits in a meadow irregularly flooded by storm surges. Palearctic species which also breeds in Alaska and northern Yukon, it has been reported a few times in the extreme northwestern NWT where one pair has been suspected to breed. Another individual was sighted in Inuvik in June 1987 (H.L. Dickson, pers. comm.).

WATER PIPIT - Uncommon summer resident and migrant, confirmed breeder. Almost exclusively observed on dry sandy coastal bluffs. One nest with three nestlings was found on 19 July 1987. The nest was located in a small sand cavity, at the base a coastal bluff, 20 m from the sea. Holarctic species of low-arctic affinity, this species nests in scattered locations on the tundra, and sometimes south of the treeline, in the Delta region. 76 records.

YELLOW WARBLER - Rare summer resident. Suspected breeder but singing males not observed after 23 June. Exclusively observed in tall shrubs in ravines, on the lee side of pingos, or at the base of steep ridges. Nearctic species that commonly nests in the forested part of the Delta region and occasionally on the tundra. 9 records.

AMERICAN TREE SPARROW - Fairly common summer resident and spring migrant, confirmed breeder. Fourth most common passerine. Number of sightings peaked before 1 July; fall movements were less noticeable. Nests were well hidden in low shrubs located in wetlands, ravines, between high-centred polygons, or on banks bordering lakes. Nearctic species that commonly nests throughout the forest and the tundra of the Delta region. 683 records.

SAVANNAH SPARROW - Very common summer resident, confirmed breeder. Second most common passerine. Nested on dry tundra, often concealed by low shrubs, at the base of hummocks. Eggs observed as early as 13 June and nestlings, 25 June . Nearctic species of wide distribution, it commonly nests on tundra throughout the Delta region and in open meadows in forested areas. 4,123 records.

WHITE-CROWNED SPARROW - Uncommon summer resident, suspected breeder. Observed usually in tall shrubs, on the lee side of pingos or on banks surrounding lakes. Usually solitary. Nearctic species which commonly nests in the forested part of the Delta region and occasionally on the tundra. 36 records.

LAPLAND LONGSPUR - Abundant summer resident, and spring and fall migrant, confirmed breeder. Most abundant passerine. Nested on dry tundra, often concealed by dwarf willow or birch, at the base of hummocks or between tussocks. Eggs observed as early as 11 June and nestlings, 23 June. Circumpolar pan-arctic species which nests in abundance on the tundra of the Delta region. 9,920 records.

SNOW BUNTING - Accidental summer transient, only one record on 21 August 1987. One pair was observed every summer (1985-1987) at Tuktoyaktuk. It was seen repeatedly carrying food items to a cavity, in the roof of a house. This circumpolar pan-arctic species commonly migrates through the Mackenzie Valley; it occasionally nests in the coastal zone of the Delta region.

COMMON/HOARY REDPOLL - Common summer residents, both species were regularly observed but most sightings were of flying unidentified individuals. Third most common passerines. Intermediate Common and Hoary Redpolls plumages, as illustrated in Troy (1985), were present. Commons seemed more abundant than Hoaries. Probable nesters but no nest was found. They favoured low shrubs where non-breeders congregated in small flocks. Circumpolar species, the Common Redpoll is of subarctic and low-arctic affinity whereas the Hoary Redpoll is of high-arctic affinity. They both commonly nest in the Delta region, south and north of the treeline. The Hoary Redpoll may winter in the region. 1,143 records.

5.3 Species Observed Within 100 Km of Toker Point

NORTHERN SHOVELER - Two individuals observed at Tuktoyaktuk, on 1 and 6 June 1987 (M. Yunker, pers. comm.). This Holarctic species nests in the Delta region, but is more common south of the treeline.

CANVASBACK - We observed a flock of 10 males and females in Hutchinson Bay, in July 1986. This duck nests rarely in the forested part of the Delta region. One nest was found on Fish Island, in the central outer Mackenzie Delta, north of the

treeline, in June 1987 (H.L. Dickson, pers. comm.).

GOLDEN EAGLE - We observed two juveniles south of Tuktoyaktuk in July 1986 and 1987. This Holarctic species is uncommon in the Delta region but more common west of the Mackenzie River.

LEAST SANDPIPER - One individual observed at Tuktoyaktuk, on 30 May 1987 (M. Yunker, pers. comm). This Nearctic species of subarctic and low-arctic affinity is an uncommon nester in the Delta region.

THAYER'S GULL - We observed one individual at Tuktoyaktuk on 17 August 1987, and three others offshore Toker Point in August and September 1987. This Nearctic gull of high-arctic affinity is a rare migrant in the Delta region.

SLATY-BACKED GULL - Unconfirmed sighting. We observed one individual in Tuktoyaktuk Harbour on 21 August 1987, loafing on a pebble beach with Glaucous Gulls. It appears to be a rare transient in the Beaufort Sea (Johnson et al. 1975). One old and dubious record exists from 1901 (Martell et al 1984).

BLACK-LEGGED KITTIWAKE - At least 60 adults and 10 juveniles observed offshore Toker Point by DFO personnel in August and September 1987 (M. Yunker, pers. comm.). These birds are probably of the Pacific subspecies as the Atlantic subspecies is known to wander only as far west as Victoria Island. The closest breeding colonies are near Point Barrow, Alaska.

IVORY GULL - One juvenile observed offshore (approx. 70 01' N, 133 26' W), on 3 August 1987, by DFO personnel (M. Yunker, pers. comm.). This rare circumpolar bird of high-arctic affinity has been infrequently reported in the region; it has been observed in fall and winter near Tuktoyaktuk (Porsild 1943) and near Shingle Point, Yukon (Salter et al. 1980). It is rare in the Delta region.

THICK-BILLED MURRE - Two individuals were sighted within 50 km of Toker Point, and two more further offshore (M. Yunker, pers. comm.). This circumpolar species is a rare migrant along the coast of the Delta region. The closest breeding colony is located at Cape Parry, more than 250 km to the east. These birds may belong to the subspecies Uria lomvia arra.

RUFOUS HUMMINGBIRD - Unconfirmed sighting. One individual observed offshore by DFO personnel during the summer of 1987; exact date and location unknown . The bird, a female according to descriptions, hovered in front of the bridge and was observed by crew members for several seconds (Officers of C.S.S. J.P. Tully, pers. comm.). A male was reported at the Anderson River Delta during the same summer (S. Barry, pers. comm.). It had not been previously reported in the region and is accidental.

DARK-EYED JUNCO - One individual was observed at Tuktoyaktuk on 27 May 1987 (M. Yunker, pers. comm.). This Nearctic species

occasionally nests in the forested parts of the Delta region and has been observed only rarely on the tundra.

RED-WINGED BLACKBIRD - One male was observed at Tuktoyaktuk on 1 June 1987 (M. Yunker, pers. comm.). This Nearctic species has rarely been reported in the Delta region. Five individuals were sighted on Fish Island, in the outer Mackenzie Delta north of the treeline, in June 1987 (H.L. Dickson, pers. comm.).

6.0 CONCLUSION

No outstanding concentration of birds and few unsual bird sightings were recorded at Toker Point between 1985 and 1987. In an avifaunal perspective, Toker Point may be considered a typical (rather than exceptional) area of the Beaufort Sea coast and the Canadian western low-arctic.

Bird use of the area was primarily concentrated on or near the coastline, hence the vulnerability of many species to oil spills. Bird use was greatest in August when the highest diversity of species and peak numbers were recorded. The area was primarily used as a staging and moulting ground, although a fair number and diversity of breeding species were recorded. Our results concur with those of Alexander et al. (1988) who, using aerial surveys of the entire Beaufort Sea region, described the bird use of the area as low from early June to mid-July and high from mid-July to mid-August. However, this high use period should be extended to the end of August. Use of the area was moderate in September.

Although Toker Point's coastal waters and interior wetlands attracted substantial numbers of birds, the availability of similar habitats elsewhere in the region reduces concerns for localized negative impacts on birds from human activities.

Sightings of particular interest included those of Common Mergansers, which were unusually numerous for this latitude; Rough-legged Hawks, which were exclusively ground-nesters at Toker Point; and Long-billed Dowitcher, for which we had a first breeding record for the Tuktoyaktuk Peninsula. Unconfirmed sightings of Rufous Hummingbird and Slaty-backed Gull were also of interest.

Despite numerous limitations in our sampling methods, it appears that wide fluctuations in bird numbers and in the relative abundance of each species have taken place at Toker Point during the study period. Such or even greater fluctuations have been documented in other northern wildlife species (see Barry 1962, Kerbes 1983, McLean 1986, Meldgaard 1986, Sirois 1987, Sirois In prep., Sirois et al. 1987 & unpubl. data). "Boom and bust cycles" appear to be normal in Arctic ecosystems. This underlines the great difficulty of monitoring the specific and negative impacts of human and industrial activities on northern bird populations. As witnessed in 1986, a natural phenomenon such as a late spring, can have substantial impacts on a local bird population.

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Appendix 1. English, scientific, and Inuvialuktun names of bird species mentioned in this report.

English Name	Scientific Name	Inuvialuktun Name*
Red-throated Loon	Gavia stellata	Qaqsauq
Pacific Loon	Gavia pacifica	Qaqsauqpialuk
Common Loon	Gavia immer	Tuullik
Yellow-billed Loon	Gavia adamsii	Qaqlulik
Tundra Swan	Cygnus columbianus	Qugyuq
Greater White-fronted Goose	Anser albifrons	Tingmiaq
Lesser Snow Goose	Chen caerulescens	Kanguq
Brant	Branta bernicla	Niqlirnaq
Canada Goose	Branta canadensis	Uluagullik
Green-winged Teal	Anas crecca	Saviligaaluk
Mallard	Anas platyrhyncos	Maliraaluq
Northern Pintail	Anas acuta	Ivugaq
Northern Shoveler	Anas clypeata	
American Wigeon	Anas americana	Ugiugialuk
Canvasback	Aythya valisineria	Quliingit/Qatiqtualuk
Greater Scaup	Aythya marila	Qaqlutuq
Lesser Scaup	Aythya affinis	Qaqlutuk
Common Eider	Somateria mollissima	Amaulik/Qaugaq
King Eider	Somateria spectabilis	Qingalik
Oldsquaw	Clangula hyemalis	Ahaanliq
Surf Scoter	Melanitta perspicillata	Tunraviaraaluk
White-winged Scoter	Melanitta fusca	Tunravik
Common Goldeneye	Bucephala clangula	Aviluqtuq
Common Merganser	Mergus merganser	Pairaaluk
Red-breasted Merganser	Mergus serrator	Pairaaluk
Bald Eagle	Haliaeetus leucocephalus	Tingmiaqpak
Northern Harrier	Circus cyaneus	
Rough-legged Hawk	Buteo lagopus	Qilriq
Golden Eagle	Aquila chrysaeotus	Tingmiaqpak
Merlin	Falco columbarius	Iqalukturuuyualuk
Peregrine Falcon	Falco peregrinus	Kidjgaviaraq
Gyrfalcon	Falco rusticolus	Kidjgavik
Willow Ptarmigan	Lagopus lagopus	Aqidjgiq
Rock Ptarmigan	Lagopus mutus	Niksaaktualuk
Sandhill Crane	Grus canadensis	Tatidjgaq
Black-bellied Plover	Pluvialis squatarola	
Lesser Golden-Plover	Pluvialis dominica	
Semipalmated Plover	Charadrius semipalmatus	Gaivallaguuyualuk
Lesser Yellowlegs	Tringa flavipes	
Whimbrel	Numenius phaeopus	Tuulik
Hudsonian Godwit	Limosa haemastica	Niuktuvak
Ruddy Turnstone	Arenaria interpres	Qulliqullialuk
Sanderling	Calidris alba	
Semipalmated Sandpiper	Calidris pusilla	Livilivilaaluk
Least Sandpiper	Calidris minutilla	
White-rumped Sandpiper	Calidris fuscicollis	Qatirtulik
Baird's Sandpiper	Calidris bairdii	
Pectoral Sandpiper	Calidris melanotos	

Appendix 1. Continued.

English Name	Scientific Name	Inuvialuktun Name
Stilt Sandpiper	Calidris himantopus	
Buff-breasted Sandpiper	Tryngites subruficollis	
Long-billed Dowitcher	Limnodromus scolopaceus	Siuktuvak
Common Snipe	Gallinago gallinago	
Red-necked Phalarope	Phalaropus lobatus	Puvitchisuqtuq
Red Phalarope	Phalaropus fulicaria	Qayalguyualuk
Pomarine Jaeger	Stercocarius pomarinus	
Parasitic Jaeger	Stercocarius parasiticus	
Long-tailed Jaeger	Stercocarius longicaudus	Isunngaq
Thayer's Gull	Larus thayeri	
Slaty-backed Gull	Larus schistisagus	
Glaucous Gull	Larus hyperboreus	Nauyaq
Black-legged Kittiwake	Rissa tridactyla	
Sabine's Gull	Xema sabini	Iqqiriariaqyuk
Ivory Gull	Pagophila eburnea	
Arctic Tern	Sterna arctica	Imitqutailaq
Thick-billed Murre	Uria lomvia	Utpa
Snowy Owl	Nyctea scandiaca	Ukpik
Short-eared Owl	Asio flammeus	Nikpayuq
Rufous Hummingbird	Selasphoros rufus	
Alder Flycatcher	Empidonax alnorum	Saksagialuk
Horned Lark	Eremophila alpestris	Qaukyuligaq
Tree Swallow	Tachycineta bicolor	
Common Raven	Corvus corax	Tulugaq
Hermit Thrush	Catharus guttatus	
American Robin	Turdus migratorius	Saavraq
Yellow Wagtail	Motacilla flava	
Water Pipit	Anthus spinoletta	Uyamiktuq
Yellow Warbler	Dendroica petechia	
American Tree Sparrow	Spizella arborea	
Savannah Sparrow	Passerculus sandwichensis	
White-crowned Sparrow	Zonotrichia leucophrys	
Dark-eyed Junco	Junco hyemalis	
Lapland Longspur	Calcarius laponicus	Nasauligaaluk
Snow Bunting	Plectrophenax hyperboreus	Amauligaaluk
Red-winged Blackbird	Agelaius phoeniceus	
Common Redpoll	Carduelis flammea	
Hoary Redpoll	Carduelis hornemanni	

* List translated by Charles Gruben; subject to review.

Appendix 2. Number of sightings of mammals at Toker Point and vicinity, 1985-1987.

Species	1985	1986	1987
Arctic Ground Squirrel *Spermophilus parryii*	53	62	88
Northern Red-backed Vole *Clethrionomys rutilus*	4	5	3
Collared Lemming *Dicrostonyx torquatus*	0	0	1
Muskrat *Ondatra zibethicus*	0	0	1
Beluga *Delphinapterus leucas*	7	6	5
Bowhead Whale *Balaena mysticetus*	0	0	3a
Wolf *Canis lupus*	0	0	2
Arctic Fox *Alopex lagopus*	3	22	41
Red Fox *Vulpes vulpes*	1	0	1
Grizzly Bear *Ursus arctos*	0	0	1b
Polar Bear *Ursus maritimus*	1c	0	1d
Ringed Seal *Phoca hispida*	0	4	1
Reindeer *Rangifer tarandus*	0	1,337	7

a sighted offshore by Mark Yunker, DFO.
b 40 km SE of Toker Point (Eskimo Lakes), July 1987.
c 25 km SE of Toker Point (Tuktoyaktuk Harbour), September 1985.
d 20 km E of Toker Point (Hutchison Bay), August 1987.